

**IN THE CLAIMS:**

~~Please cancel claims 1-3 without prejudice.~~

Please add new claims 4-31 as follows:

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- 4. (New) A gene expression library, comprising a pool of expression constructs, each expression construct comprising a vector containing one or more cDNA or genomic DNA fragments, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of uncultured donor microorganism, wherein the one or more cDNA or genomic DNA fragments in the vector are derived from a single organism, and wherein the cDNA or genomic DNA fragments are each operably-associated with one or more regulatory regions that drives expression of genes encoded by the cDNA or genomic DNA fragments in an appropriate host organism.
5. (New) The gene expression library of claim 4, wherein the microorganisms are derived from an environmental sample.
6. (New) The gene expression library of claim 4, wherein the microorganisms are a mixed population of uncultured organisms.
7. (New) The gene expression library of claim 4, wherein the DNA fragment comprises one or more operons, or portions thereof.
8. (New) The gene expression library of claim 7, wherein the operon or portions thereof encodes a complete or partial metabolic pathway.
9. (New) The gene expression library of claim 4, wherein the DNA encodes an enzyme or enzymes.

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10. (New) The gene expression library of claim 4, wherein each expression construct comprises a vector containing one cDNA or genomic DNA fragment.
  11. (New) A method for making a gene expression library, comprising ligating a vector to one or more cDNA or genomic DNA fragments to form a pool of expression constructs, wherein said cDNA or genomic DNA fragments in the pool of expression constructs are obtained from a plurality of species of uncultured donor microorganisms, wherein the one or more cDNA or genomic DNA fragments in the vector are derived from a single organism, and wherein the genes contained in the cDNA or genomic DNA fragments and are operably-associated with their native or exogenous regulatory regions which drive expression of the genes in an appropriate host cell.
  12. (New) The method of claim 11, wherein the microorganisms are derived from an environmental sample.
  13. (New) The method of claim 11, wherein the microorganisms are a mixed pop
  14. (New) The method of claim 11, wherein the DNA fragment comprises one or more operons, or portions thereof.
  15. (New) The method of claim 14, wherein the operon or portions thereof encodes a complete or partial metabolic pathway.
  16. (New) The method of claim 11, wherein the DNA encodes an enzyme or enzymes.
  17. (New) The method of claim 11, wherein each expression construct comprises a vector containing one cDNA or genomic DNA fragment.

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18. (New) A method for making a gene expression library comprising transferring a pool of expression constructs in a species of host organism to another species or strain of host organism, said expression construct comprising a vector that replicates in different species or strains of host cell, said vector comprising one or more cDNA or genomic DNA fragments, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are obtained from a plurality of species of uncultured donor microorganisms, wherein the one or more cDNA or genomic DNA fragments in the vector are derived from a single organism, and wherein the genes contained in the cDNA or genomic DNA fragments are operably-associated with their native or exogenous regulatory regions which drive expression of the genes in an appropriate host cell.
  19. (New) The method of claim 18, wherein the microorganisms are derived from an environmental sample.
  20. (New) The method of claim 18, wherein the microorganisms are a mixed population of uncultured organisms.
  21. (New) The method of claim 18, wherein the DNA fragment comprises one or more operons, or portions thereof.
  22. (New) The method of claim 21, wherein the operon or portions thereof encodes a complete or partial metabolic pathway.
  23. (New) The method of claim 18 wherein the DNA encodes an enzyme or enzymes.
  24. (New) The method of claim 18, wherein each expression construct comprises a vector containing one cDNA or genomic DNA fragment.

25. (New) A gene expression library, comprising a pool of expression constructs, each expression construct comprising a vector containing one or more cDNA or genomic DNA fragments encoding at least one protein having enzymatic activity, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of uncultured donor microorganisms and wherein the cDNA or genomic DNA fragments are operably-associated with one or more regulatory regions that drives expression of genes encoded by the cDNA or genomic DNA fragments in an appropriate host organism.
26. (New) A method for making a gene expression library, comprising ligating a vector to one or more cDNA or genomic DNA fragments to form a pool of expression constructs, wherein said cDNA or genomic DNA fragments in the pool of expression constructs are obtained from a plurality of species of uncultured donor microorganisms and wherein the genes contained in the cDNA or genomic DNA fragments encode at least one protein having enzymatic activity and are operably-associated with their native or exogenous regulatory regions which drive expression of the genes in an appropriate host cell.
27. (New) A method for making a gene expression library comprising transferring a pool of expression constructs in a species of host organism to another species or strain of host organism, said expression construct comprising a vector that replicates in different species or strains of host cell, said vector comprising one or more cDNA or genomic DNA fragments encoding at least one protein having enzymatic activity, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are obtained from a plurality of species of uncultured donor microorganisms and wherein the genes contained in the cDNA or genomic DNA fragments are operably-associated with their native or exogenous regulatory regions which drive expression of the genes in an appropriate host cell.